01-24

**Procedure for establishing a Communication Across a
Computer Network of the INTERNET Type, between Two
Information-transmitting Devices

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UTILITY
PATENT APPLICATION
TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket	160383.90121
First Inventor	Sabatier et al.
Title	**
Express Mail Label No.	EL 389 232 284 US

| **APPLICATION ELEMENTS**
See MPEP Chapter 600 concerning utility patent application contents. | *ADDRESS TO:* | **Assistant Commissioner for Patents**
Box Patent Application |

1. [X] Fee transmittal Form
   (Submit an original and a duplicate for fee processing)

2. [X] Specification   [Total [8]]
   (preferred arrangement set forth below)
   - Descriptive title of the invention
   - Cross References to Related Applications
   - Statement Regarding Fed Sponsored R&D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure

3. [X] Drawing(s) (35 USC 113)   [Total Sheets [1]]

4. Oath or Declaration   [Total Pages [3]]
   a. [X] Newly executed (original or copy) *Unsigned copy*
   b. [ ] Copy from prior Application (37 CFR 1.63(d))
      (for continuation/divisional with Box 17 completed)
      [Note Box 5 below]
      i. [ ] DELETION OF INVENTOR(S)
         Signed Statement attached deleting
         inventor(s) named in prior application,
         see 37 CFR 1.63(d)(2) and 1.33(b).

5. [ ] Incorporation By Reference (useable if Box 4b is checked)
   The entire disclosure of the prior application from
   which a copy of the oath or declaration is supplied
   under Box 4b, is considered as being part of the
   disclosure of the accompanying application and is
   hereby incorporated by reference herein.

6. [ ] Microfiche Computer Program *(Appendix)*

7. [ ] Nucleotide and/or Amino Acid Sequence Submission
   (if applicable, all necessary)
   - [ ] Computer readable Copy
   - [ ] Paper Copy (identical to computer copy)
   - [ ] Statement Verifying identity of above

ACCOMPANYING APPLICATION PARTS

8. [ ] Assignment Papers (cover sheet & documents)

9. [ ] 37 CFR 3.73(b) Statement   [ ] Power of Attorney
   (where there is an assignee)

10. [ ] English Translation Document *(if applicable)*

11. [ ] Information Disclosure   [ ] Copies of IDS
    Statement (IDS)/PTO-1449   Citations

12. [ ] Preliminary Amendment

13. [X] Return receipt postcard (MPEP 503)
    (Should be specifically itemized)

14. [ ] *Small Entity   [ ] Statement filed in prior application
    Statement(s)   [ ] Status still proper and desired

15. [X] Certified copy of priority Document(s)
    (if foreign priority is claimed)

16. [ ] Other:
    * A newstatement is required to pay small entity fees, except where
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17. If a CONTINUING APPLICATION, *check appropriate box and supply the requisite information:*

[ ] Continuation   [ ] Divisional   [ ] Continuation-in-part (CIP)   of prior application no. ____/____
Prior application information: Examiner: _____   Group/Art Unit: _____

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Procedure for establishing a communication across a computer network of the INTERNET type, between two information-transmitting devices.

A computer network of the INTERNET type is well suited to the exchange of data between a computer terminal and a server dialled up by the latter by means of the address of the server in the network.

As there are a large number of terminals, it is not possible to allocate to each of them a definitive address, so that each of them has an address assigned to it, temporary and variable from one call to the next, only when it initiates a call, that address being communicated to the server for response purposes.

Thus, the number of addresses remains limited to the number of permanent addresses, those of the servers, and the temporary addresses of active machines in the process of calling.

For this reason, terminals at rest cannot be located and therefore dialled up, since they are unknown to the network through lack of address. In particular, it is not possible to establish direct telephone communication over the INTERNET, to transmit information, such as voice or data

The present invention aims to solve this problem of access to a terminal or any other information-transmitting device.

To this end, the invention concerns a process for establishing a communication, on a first, computer network of the INTERNET type, between two devices on this first, computer network and on a second, telephone network, in which:

    - one of the two calling devices calls the other on the second, telephone network to invite it into the said communication by giving it the references of a message accessible on the computer network,

    - the calling device connects itself to the first, computer network, receives an IP1 computer address and incorporates it into the aforesaid message, and

    - the device called connects itself to the first, computer network, accesses the aforesaid message, obtains the IP1 computer address of the device calling and establishes the aforesaid communication.

The term 'message' is used here to mean any body of information which can be

transmitted across the computer network, whatever the presentation of this information, which may therefore in particular represent alphanumerical characters as well as fax type images.

The message, still accessible via the computer network, has the function of a site representing the calling device, the references transmitted by the invitation to make communication sent by the latter being in fact a link in order to access the message. The telephone network serves as a signalling network for the computer network, in order to transmit that link, and thus makes it possible to demand that a device, temporarily disconnected from the computer network, connects itself to the network deliberately, when another device wishes to enter into communication with it via the computer network

It is of advantage for the calling device to transmit a secret code word, which the latter subsequently retransmits, via the first, computer network, to the calling device so that the latter agrees to enter into communication.

In this way, protection is assured against any attempt to substitute the called correspondent, following computer hacking.

The invention will be better understood with the aid of the following description of a preferred mode of implementation of the process of the invention, with reference to the single appended drawing, which is a diagrammatic representation of information-transmitting terminals connected to the switched telephone network STN, and to the INTERNET, in which there are two INTERNET service providers.

In the figure, two information-transmitting terminals 1 and 2 are represented which, in addition to the classic circuits for a data link with the INTERNET network 3, via telephone lines 14, 24 respectively, also have in this example a microphone and a loudspeaker and circuits allowing vocal communication to be established. This vocal communication may here be established via the switched telephone network 4, with digital conversion upon entering the network 4 and reconversion to analogue upon exit from the network 4. If the network 4 was an integrated services fully digital network (ISDN), terminals 1 and 2 would themselves ensure the above conversions by codecs. In addition, terminals 1, 2 can exchange between themselves, across the INTERNET 3, packets of digital, coded vocal signals in compression, which are decompressed and decoded upon reception to be restored on the loudspeaker or a receiver.

The INTERNET 3 has two providers of access 31, 32 to the INTERNET, also connected to the STN 4, to which the users of terminals 1 and 2 are respectively

subscribed, these users being able (broken lines) to reach their respective service providers 31, 32 via their lines 14, 24 of the STN 4. The INTERNET link 33 connecting the two service providers 31, 32 illustrates a classic temporary link on the INTERNET 3 allowing terminals 1 and 2 to be connected together by means of their lines 14 and 24. In practice, there are many such terminals.

The software architecture of terminals 1 and 2 is inspired by the recommendation H 323 of the ITU with, at the top of level 7 in the OSI (Open Systems Interconnection) classification, an application relating here to telephony across the INTERNET 3.

Below, and up to a command circuit for a data exchange modem, are two channels for data processing OSI layers, one for signalling and the other for useful data, in this case vocal signals in the form of packets.

The service provider 31 has a memory 311 which it places at the disposal of terminal 1, with respect to its writing, memory 311 which is accessible for reading purposes from any device on the INTERNET 3, providing that device supplies the memory address information necessary to retrieve a specific electronic document from the memory 311.

Terminal 1 thus has available, through the intermediary of the service provider 31, a section of the memory 311 which is the functional equivalent of an INTERNET site, and which can therefore be consulted by any other terminal

In a general way, the memory 311 may be installed in any location whatever, perhaps remote from the service provider 31, to the extent that the latter serves as intermediary designed to allow access to that memory 311. The latter could therefore be situated in a computer centre, or even with another service provider, with the service provider 31 establishing an INTERNET link, for instance, when access to the memory 311 is required.

The process of establishing a communication between terminals 1 and 2 will now be explained.

Generally, the establishment of a communication, on the first, computer network 3 of INTERNET type, between two devices, here the terminals 1 and 2 of this first, computer network 3 and of the second, telephone network 4, involves the following steps:

one of the two calling devices 1 dials up the other 2 on the second, telephone network 4 to invite it into the said communication by giving it the references of

a message accessible on the computer network 3.

the calling device 1 connects itself to the first, computer network 3, receives an IP1 computer address and incorporates it into the aforesaid message, and

the called device, 2, connects itself to the first, computer network 3, accesses the aforesaid message, obtains the IP1 computer address of the calling device 1 and establishes the aforesaid communication.

The above process thus avoids the necessity of a rendez-vous or communication server, by inviting terminal 2 to consult the message at the memory-site 311 containing the up-to-date IP1 address.

The IP31 or URL address information of the access provider 31 may be a classic INTERNET address or simply a reference allowing the latter to be retrieved, for instance the name of the service provider, in order to access the message, to write it and to read it, via that provider.

In that example, terminal 1 composes the electronic mail in the form of at least one HTML page on which is included a marker specifying the position of the IP1 computer address on the page. In that example, it is a question of a command character, invisible on a screen.

In order to avoid establishing a communication via the INTERNET 3 between two terminals 1 and 2 which would not be compatible, at the time of the call via the telephone network 4 the two terminals 1 and 2 exchange signals verifying their compatibility for communication across the INTERNET 3. For this purpose, the CCITT Q931 protocol is used here. A secret code word is transmitted by terminal 1 to terminal 2, which the latter subsequently retransmits, via the INTERNET 3, to terminal 1 so that the latter agrees to enter into communication.

In addition, the signals contain an identifier N1 for the terminal 1 calling via the telephone network 4, which allows terminal 2, or its user reading these signals on a terminal 2 display, perhaps to refuse to establish the sought for INTERNET communication. The identifier is, for instance, the telephone number N1 of terminal 1, issued by the CLASS service of the telephone network 4.

In particular, it can be arranged that terminals 1 and 2 automatically establish communication between each other and each then activates warning mechanisms such as a bell or indicator light, to inform the users of devices 1 and 2.

In even greater detail, in this example terminal 1, calling terminal 2 via the STN 4, issues a signal CNGa at 1300 Hz which terminal 2 recognises, here without activating its bell, and it replies by continuous emission of a signal at 1300 Hz followed by a V21 identification frame containing a terminal 2 identifier, such as the serial number and manufacturer. Terminal 1 replies with an NSC frame which contains an identifier for terminal 1, the IP31 computer address of the server 31, the name of a directory and an HTML page file name together with the secret authentication code. Terminal 2 executes acceptance of this data by emitting a DCN frame and the two terminals 1, 2 "hang up" to free their lines 14, 24.

Terminal 1 calls its service provider 31 and edits an HTML page, with the name XX of the directory and a name YY of the file for the message of the page and the IP1 computer address which it has obtained from the service provider 31, and sends the HTML message to the provider 31 who places it in the memory 311 in a section specified by the name XX of the directory above, transmitted to terminal 1.

It will be noted that the telephone call from terminal 1 to terminal 2 may take place after dispatch of the HTML page to the service provider 31, but it is also possible for the calling terminal 1 to dial up the other terminal 2 first of all on the second, telephone network 4, prior to connecting itself to the first telephone network, INTERNET 3, providing there is no risk of terminal 2 calling the service provider 31 too quickly since it does not yet have the HTML page, or if it is not up to date with respect to the IP1 address. In a particular instance, terminal 1 may however have instructed terminal 2 not to call until after a delay or a specified time.

In practice, the message on the HTML page may be retained permanently in the memory 311 and the service provider simply updates the IP1 address, perhaps automatically, each time it provides a new IP1 address to terminal 1 which calls it.

The service provider 32 here has a classic rôle, in contrast to the service provider 31. Terminal 2 calls the latter using the INTERNET 3, via its service provider 32 and sends it the IP31 address to establish a link such as that bearing the reference 33. Once the service provider 31 has been reached by terminal 2, the latter sends it the memory address information or reference (name XX of the directory and name YY of the file) previously received from terminal 1 via the STN 4 for reading access to the HTML page deposited in the memory 311 by terminal 1. The message reference transmitted from terminal 1 to terminal 2 may simply indicate a message, the address of which is already known to terminal 2.

When terminal 2 then calls terminal 1, that amounts in fact simply to extending the link 33, already established with the service provider 31, to line 14 Terminal 2 then sends its address IP2 to, terminal 1. In practice, as the service provider 31 has already received this computer address IP2 from terminal 2 to communicate with the latter, that amounts to ordering the server 31 to communicate the IP2 address to terminal 1. This command may originate from terminal 2 or from terminal 1, perhaps by the sole fact of the service provider 31 being called by one or other of terminals 1, 2. Terminal 2 at least then has at its disposal in all cases the IP1 computer address of the other terminal 1 and may therefore communicate with it. Terminal 2 then sends to the IP1 address a SETUP signal with its IP2 address and the secret code word to authenticate its identity. Terminal 1 in return sends a CONNECT connecting signal if it recognises the authentication code word and terminal 2 replies with a CONNECT-ACK signal of agreement, followed by an exchange of packets of useful data, such as voice or computer data such as faxes, or electronic mail.

CLAIMS

1.- Process for establishing a communication, on a first, computer network (3) of the INTERNET type, between two devices (1, 2) on this first, computer network (3) and a second, telephone network (4), in which:

- one of the two calling devices (1) calls the other (2) on the second, telephone network (4) to invite it into the said communication by giving it the references (IP31, XX, YY) of a message accessible on the computer network (3),

- the calling device (1) connects itself to the first, computer network (3), receives a computer address (IP1) and incorporates it into the aforesaid message, and

- the called device (2) connects itself to the first, computer network (3), accesses the aforesaid message, obtains the computer address (IP1) of the calling device (1) and establishes the aforesaid communication.

2.- Process in accordance with claim 1, in which the calling device (1) calls the other device (2) first of all on the second, telephone network (4) prior to connecting itself to the first, computer network (3).

3.- Process in accordance with claim 1, in which the device (1) calling the other device (2) via the second, telephone network (4) sends it a secret code word, which the latter subsequently retransmits, via the first, computer network (3), to the calling device (1) so that the latter may agree to establish communication.

4.- Process in accordance with claim 1, in which, during the call via the telephone network (4), the two devices (1, 2) exchange signals verifying their compatibility for communication across the first, computer network (3).

5.- Process in accordance with claim 4, in which the signals contain an identifier (N1) of the device (1) calling via the telephone network (4).

ABSTRACT

Process for establishing a communication, across a computer network of the INTERNET type, between two information-transmitting devices.

According to the process for establishing a communication, on the INTERNET (3), between two device (1, 2) of the INTERNET (3) and of the STN telephone network (4),

> one of the two calling devices (1) calls the other (2) on the STN to invite it to communicate by giving it the references (IP31, XX, YY) of a message accessible on the INTERNET (3),

> the calling device (1) connects itself to the INTERNET (3), receives an address (IP1) and incorporates it in the message, and

> the called device (2) connects itself to the INTERNET (3), accesses the message, obtains the address (IP1) of the calling device (1) and establishes communication.

Single figure

FIGURE UNIQUE
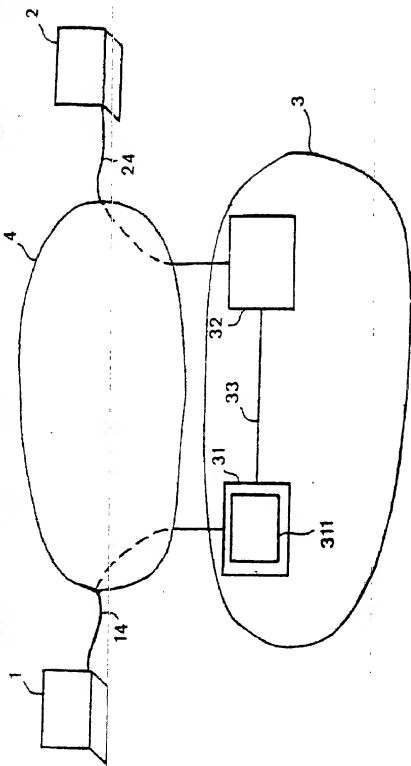
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DECLARATION FOR
UTILITY OR DESIGN
PATENT APPLICATION

[ ] Declaration   OR   [ ] Declaration
    Submitted   Submitted after
    with Initial Filing   Initial Filing

Attorney Docket Number	160383.90121
First Named Inventor	Sabatier
COMPLETE IF KNOWN	
Application Number	
Filing Date	Herewith
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PROCEDURE FOR ESTABLISHING A COMMUNICATION ACROSS A COMPUTER NETWORK OF THE INTERNET TYPE, BETWEEN TWO INFORMATION-TRANSMITTING DEVICES

(Title of the Invention)

the specification of which

[X] is attached hereto

OR

[ ] was filed on (MM/DD/YYYY) [_____] as United States Application Number or PCT International

Application Number [_____] and was amended on (MM/DD/YYYY) [_____] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.
I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
99 00700	France	1/22/99	[ ]	[X]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]

[ ] Additional foreign applications numbers are listed on a supplemental priority sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	
		[ ] Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

QBMKE\4493929.

DECLARATION

I hereby claim benefit under Title 35, United States Code §120 of any United States application(s), or §365(C) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or PCT international application in the manner provided in the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

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As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and all continuation and divisional applications based thereon, and to transact all business in the Patent and Trademark Office connected therewith:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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Post Office		

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Post Office		

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Inventor's						Date		

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